



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Mckenzie E. Camp	Project Number J0804
Project Title Table Scraps End Power Lapse?	
Objectives/Goals The objective is to see if common kitchen waste products: potatoes, orange peels, and cabbage, will produce methane gas, and if so, which will produce the most.	
Abstract	
Methods/Materials I obtained all items needed. Then, I processed and blended all kitchen waste products separately and added five cups of water to each. I opened up the air flow to the tubes with a tire valve tool. Then, using a cake decorating tool, I put the liquid separately into six large tire inner-tubes, having two tubes per product with 3 1/8 cups water and 2 3/8 cups product in each tube. I put the tubes in a room at regular room temperature for two days. I then put them in a room with a radiant room heater at 86 degrees Fahrenheit for one month and four days, shaking the tubes every few days to keep the product mixed. I then took the tubes outside and opened the cap, putting my thumb over opening so that nothing could escape. I hooked one end of the fuel hose to the campstove, and hooked the other end to the tubes, one by one. I squeezed the tube to get the methane gas flowing up the hose to the stove with a match at the stove. When the fire flamed up and was blue, it meant there was methane gas. I measured the amount of time the methane gas burned for each tube.	
Results For the orange peels, the methane gas burned 7 seconds for the first tube, and 9 seconds for the second tube, giving it an average of 8 seconds. For the cabbage, the methane gas burned 11 seconds for the first tube, and 9 seconds for the second tube, giving it an average of 10 seconds. For the potatoes, the methane gas burned 35 seconds for the first tube, and 12 seconds for the second tube, giving it an average of 23.5 seconds.	
Conclusions/Discussion I conclude that my hypothesis was correct. The potatoes did produce the most methane gas. The orange peels produced the least amount of methane gas, but its average was only two seconds below the average of what the cabbage produced. This suggests that we may want to explore using our common kitchen waste products as an alternative fuel source.	
Summary Statement My project is about if these common kitchen waste products- orange peels, potatoes, and cabbage, will produce any methane gas, and if so, which will produce the most.	
Help Received Mom helped glue paper on board; sister helped time the methane gas as it burned; Dad helped come up with the idea, got the tubes for me, and helped put the product in tubes and measure the amount of methane gas.	